=> s 11 ful

FULL SEARCH INITIATED 13:32:53 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 190 TO ITERATE

100.0% PROCESSED 190 ITERATIONS 5 ANSWERS

SEARCH TIME: 00.00.01

L2 5 SEA SSS FUL L1

=> d 1-5

L2 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 740746-58-1 REGISTRY

ED Entered STN: 06 Sep 2004

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, 1-oxide (9CI) (CA

INDEX NAME)

FS 3D CONCORD

MF C12 H13 N3 O3 S

CI COM

SR CA

### \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L2 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 327602-58-4 REGISTRY

ED Entered STN: 16 Mar 2001

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monosodium salt (9CI) (CA INDEX NAME)

MF C12 H13 N3 O2 S . Na

SR CA

LC STN Files: CA, CAPLUS

CRN (72811-73-5)

Na

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN RN 160822-47-9 REGISTRY

ED Entered STN: 14 Feb 1995

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI) (CA INDEX NAME)

MF C12 H13 N3 O2 S . Cl H

SR CA

LC STN Files: CA, CAPLUS, CASREACT

CRN (72811-73-5)

● HCl

- 3 REFERENCES IN FILE CA (1907 TO DATE)
- 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)
- L2 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN
- RN 72811-73-5 REGISTRY
- ED Entered STN: 16 Nov 1984
- CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME) OTHER NAMES:
- CN 3-Sulfonamido-4-(3-methylanilino)pyridine
- CN BM 960102
- FS 3D CONCORD
- MF C12 H13 N3 O2 S
- CI COM
- LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT, CHEMCATS, CSCHEM, PS, TOXCENTER, USPAT2, USPATFULL

(\*File contains numerically searchable property data)

### \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

18 REFERENCES IN FILE CA (1907 TO DATE)

18 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 58155-58-1 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, 1-oxide, monosodium salt (9CI) (CA INDEX NAME)

MF C12 H13 N3 O3 S . Na

LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL

CRN (740746-58-1)

Na

- 1 REFERENCES IN FILE CA (1907 TO DATE)
- 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 5 SEA SSS FUL L1

=> d 1-5

L2 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 740746-58-1 REGISTRY

ED Entered STN: 06 Sep 2004

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, 1-oxide (9CI) (CA

INDEX NAME)
FS 3D CONCORD

MF C12 H13 N3 O3 S

CI COM

SR CA

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L2 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 327602-58-4 REGISTRY

ED Entered STN: 16 Mar 2001

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monosodium salt (9CI)

(CA INDEX NAME)

MF C12 H13 N3 O2 S . Na

SR CA

LC STN Files: CA, CAPLUS

CRN (72811-73-5)

● Na

- 1 REFERENCES IN FILE CA (1907 TO DATE)
- 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
- L2 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN
- RN 160822-47-9 REGISTRY
- ED Entered STN: 14 Feb 1995

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI) (CA INDEX NAME)

MF C12 H13 N3 O2 S . Cl H

SR CA

LC STN Files: CA, CAPLUS, CASREACT

CRN (72811-73-5)

HCl

3 REFERENCES IN FILE CA (1907 TO DATE)

3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 72811-73-5 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 3-Sulfonamido-4-(3-methylanilino)pyridine

CN BM 960102

FS 3D CONCORD

MF C12 H13 N3 O2 S

CI COM

LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT, CHEMCATS, CSCHEM, PS,

TOXCENTER, USPATZ, USPATFULL

(\*File contains numerically searchable property data)

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

18 REFERENCES IN FILE CA (1907 TO DATE)
18 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2006 ACS on STN

RN 58155-58-1 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, 1-oxide, monosodium
 salt (9CI) (CA INDEX NAME)

MF C12 H13 N3 O3 S . Na

LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL

CRN (740746-58-1)

Na

- 1 REFERENCES IN FILE CA (1907 TO DATE)
- 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> fil caplus COST IN U.S. DOLLARS

SINCE FILE TOTAL ENTRY SESSION 176.88 177.09

FULL ESTIMATED COST

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FILE COVERS 1907 - 30 Jul 2006 VOL 145 ISS 6

FILE LAST UPDATED: 28 Jul 2006 (20060728/ED)

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http://www.cas.org/infopolicy.html

=> s 12

L3 20 L2

=> d 1-20 fbib abs fhitstr

- 1.3 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 2005:1175695 CAPLUS
- DN 144:341105
- TI Supramolecular structures of three isomeric 4-(methylphenylamino)pyridine-3-sulfonamides
- ΑU Kosutic Hulita, Nada; Danilovski, Aleksandar; Filic, Darko; Marinkovic, Marina; Mestrovic, Ernest; Dumic, Miljenko
- CS PLIVA Research and Development Ltd., Zagreb, HR-10000, Croatia
- SO Acta Crystallographica, Section C: Crystal Structure Communications (2005), C61(11), 0648-0651 CODEN: ACSCEE; ISSN: 0108-2701
- PR Blackwell Publishing Ltd.
- DТ Journal
- LΆ English
- The structures of the three title isomers, 4-(2-methylanilino)pyridine-3-AB sulfonamide, (I), 4-(3-methylanilino)pyridine-3-sulfonamide, (II), and 4-(4-methylanilino)pyridine-3-sulfonamide, (III), all C12H13N3O2S, differ in their H-bonding arrangements. In all three mols., the conformation of the 4-aminopyridine-3-sulfonamide moiety is conserved by an intramol. N-H···O H bond and a C-H···O

interaction. In the supramol. structures of all three isomers, similar C(6) chains are formed via intermol. N-H $\cdots$ N H bonds.

N-H···O H bonds lead to C(4) chains in (I), and to

R22(8) centrosym. dimers in (II) and (III). In each isomer, the overall effect of all H bonds is to form layer structures.

IT 72811-73-5

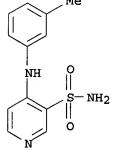
RL: PRP (Properties)

(crystal structure of)

- RN 72811-73-5 CAPLUS
- CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD RE.CNT 11 ALL CITATIONS AVAILABLE IN THE RE FORMAT

```
L3
     ANSWER 2 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
AN
     2005:1060761 CAPLUS
DN
     144:263959
TI
     4-(3-Methylanilino)pyridine-3-sulfonamide
ΑU
     Tang, Gu Ping; Gu, Jian Ming
     Institute of Chemical Biology and Pharmaceutical Chemistry, Zhejiang
CS
     University, Hangzhou, Zhejiang, 310028, Peop. Rep. China
SO
     Acta Crystallographica, Section E: Structure Reports Online (2005),
     E61(10), o3140-o3141
     CODEN: ACSEBH; ISSN: 1600-5368
     URL: http://journals.iucr.org/e/issues/2005/10/00/ob6579/index.html
     Blackwell Publishing Ltd.
PB
     Journal; (online computer file)
DT
LA
     English
     Crystals of the title compound are triclinic, space group P.hivin.1, with a
AB
     6.714(3), b 8.630(4), c 11.403(4) Å, \alpha 98.640(11), \beta
     102.57(2), \gamma 102.911(12)^\circ; Z = 2, dc = 1.423; R = 0.070,
     Rw(F2) = 0.180 for 2055 reflections. The dihedral angle between the
     pyridine and benzene rings is 62.1(1)°. Mols. are linked via
     N-H\cdots N and N-H\cdots O hydrogen
     bonds, forming a ribbon motif along the a axis.
IT
     72811-73-5
     RL: PRP (Properties)
        (crystal structure of)
RN
     72811-73-5 CAPLUS
CN
     3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)
       Me
```



# RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3	ANSWER 3 OF 20 CAP	LUS CO	PYRIGHT 2006	ACS on STN	
AN	2005:1028131 CAPLU	S			
DN	143:326220				
TI	Process for the pre	paratio:	n of torsemi	de and related intermed	iates
IN	Che, Daqing; Guntoo	ri, Bha	skar Reddy;	Duncan, Sammy Chris	
PA	Brantford Chemicals			•	
so	U.S. Pat. Appl. Pub	1., 5 p	p.		
	CODEN: USXXCO		_		
DT	Patent				
LA	English				
FAN.	CNT 1				
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
ΡI	US 2005209460	A1	20050922	US 2004-800740	20040316

OS CASREACT 143:326220

GI

AB Torsemide (I) and its salts was prepared in a process by: a) reacting II with iso-Pr isocyanate in the presence of an alkali carbonate or bicarbonate and an organic solvent to form an alkali torsemide mixture, b) recovering the alkali torsemide mixture, and c) if desired, recovering the torsemide by acidification of the alkali torsemide mixture. Thus, II prepared from 4-chloro-3-pyridinesulfonamide and m-toluidine, was treated with iso-Pr isocyanate in acetone containing sodium carbonate was heated under reflux, generally 8-20h, to give 89% I.

IT 72811-73-5P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (process for preparation of torsemide and related intermediates)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:1020330 CAPLUS

DN 143:286295

TI Process for the preparation of torsemide and related intermediates

IN Duncan, Sammy Chris; Che, Daqing; Guntoori, Bhaskar Reddy

PA Brantford Chemicals Inc., Can.

SO Can. Pat. Appl., 12 pp.

CODEN: CPXXEB

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND DATE		APPLICATION NO.	DATE		
PI	CA 2460432	AA	20050910	CA 2004-2460432	20040310		
				CA 2004-2460432	20040310		

OS CASREACT 143:286295

AB A process for preparing torsemide or its salts comprises: (A) the addition reaction of reacting 4-[(3-methylphenyl)amino]-3-pyridinesulfonamide with iso-Pr isocyanate in the presence of a copper catalyst and/or Et3N, then adding an alkali carbonate (e.g., potassium carbonate) or bicarbonate and an organic solvent (e.g., acetone) to form an optionally isolated alkali torsemide salt; (B) recovering the alkali torsemide salt only if desired; and (C) recovering torsemide by acidification of the alkali torsemide mixture with a water-soluble organic acid (e.g., acetic acid).

IT 72811-73-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in a process for the preparation of torsemide and related intermediates)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:878376 CAPLUS

DN 141:370519

TI Preparation of stable polymorphic form of torasemide

IN Yeh, Wen-Lung; Khumtaveeporn, Kanjai; McKenzie, David John

PA Torcan Chemical Ltd., Can.

SO PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PAT	CENT 1	NO.			KIN	D	DATE			APPL	ICAT	ION I	NO.		D	ATE		
		<b></b>					-									-			
ΡI	WO	2004	0899	04		A2		2004	1021	1	WO 2	004-	CA36	6		20	0040	312	
	WO	2004	0899	04		<b>A3</b>		2004	1223										
		W:	ΑE,	AG,	AL,	AM,	ΑT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,	
			CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,	
			GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KP,	KR,	KZ,	LC,	
			LK,	LR,	LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NA,	NI,	
			NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SY,	
			TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	ŪĠ,	US,	UΖ,	VC,	VN,	YU,	ZA,	ZM,	ZW	
		RW:						MW,					-			•	•		
								TJ,					-		-	•	•		

ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2424644 A 20030407 CA 2424644 AA 20041007 CA 2003-2424644 20030407

- AB The stable polymorphic form of torasemide, modification I, is prepared from other, less stable torasemide forms, by forming a solution of the starting polymorphic form of torasemide in water and methanol, stirring for at least 20 h and then phase separating the solid torasemide modification I from the liquid medium. Torasemide modification I was prepared according to above method (yield =100%).
- TT 72811-73-5P
  RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
- (preparation of stable polymorphic form of torasemide) RN 72811-73-5 CAPLUS
- CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

- L3 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 2004:525098 CAPLUS
- DN 141:71454
- TI Process for the preparation of torsemide form II
- IN Lusanna, Massimiliano; Rainoni, Mauro; Gambuzza, Filippo
- PA Cosma S.P.A., Italy
- SO Eur. Pat. Appl., 28 pp.
  - CODEN: EPXXDW
- DT Patent
- LA English
- FAN.CNT 1

L'ETA	CIAI	_																
	PATENT NO.					KIND DATE			APPLICATION NO.					DATE				
PΙ	EP	1433	784			A1		2004	0630	E	EP 2	2003-	2958	6		2	0031	222
		R:	AT,	BE,	CH,	DE,	DK,	ES,	FR,	GB,	GR,	IT,	LI,	LU,	NL,	SE,	MC,	PT,
			ΙE,	SI,	LT,	LV,	FI,	RO,	MK,	CY,	AL,	TR,	BG,	CZ,	EE,	HU,	SK	
										1	T 2	2002-1	MI27	49	1	A 2	0021	223
	US	2004	1384	69		A1		2004	0715	τ	JS 2	2003-	7446	13		2	0031	222
										1	T 2	2002-1	MI27	49		A 2	0021	223
	CA	2454	037			AA		2004	0623	C	:A 2	2003-:	2454	037		2	0031	223
										I	T 2	2002-1	MI274	49		A 2	0021	223

- OS CASREACT 141:71454
- AB The present invention relates to a new process for the preparation of torsemide, in particular of pure and stable form II, which comprises direct synthesis of torsemide from 4-(3-methylphenylamino)-3-pyridine-sulfonamide. The new process envisages fewer steps than the processes

described in the prior art, with improved yields and good quality from the chemical and preferably polymorphous points of view.

IT 72811-73-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of pure and stable form II of torsemide from 4-(3-methylphenylamino)-3-pyridine-sulfonamide)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

## RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:377771 CAPLUS

DN 141:270973

TI Synthesis and diuretic and antihypertensive activities of novel anilinopyridyl sulfonylurea derivatives

AU Tang, Weifang; Lu, Tao; Ni, Peizhou; Zhang, Yumei

CS Department of Organic Chemistry, China Pharmaceutical University, Nanjing, 210009, Peop. Rep. China

SO Zhongguo Yaoke Daxue Xuebao (2003), 34(3), 208-213 CODEN: ZHYXE9; ISSN: 1000-5048

PB Zhongquo Yaoke Daxue

DT Journal

LA Chinese

OS CASREACT 141:270973

AB Fourteen novel derivs. of anilinopyridyl sulfonylurea were designed and synthesized based on hybridization principles with torasemide as lead compound Both of the secondary amine and sulfonylurea pharmacophores were maintained while substituted phenylethylamine or substituted phenyloxyalkyl group was incorporated, and the diuretic and antihypertensive activities were measured. All the target compds. were confirmed based on elemental anal. and spectral data. Preliminary pharmacol. test revealed that compds. 4- -N-(2-phenoxyethylaminocarbonyl)-3- pyridinesulfonamide and N-[2-(4-methoxyphenoxy)ethylaminocarbonyl]-4-(3-methylphenylamino)-3-pyridinesulfonamide displayed certain diuretic effect, and compds. N-[2-(3,4- dimethoxyphenoxy)ethylaminocarbonyl]-4-(3-methylphenylamino)-3- pyridinesulfonamide and N-isopropylaminocarbonyl-4-[2-(2- methoxyphenyl)ethylamino]-3-pyridinesulfonamide possessed, to some extent, antihypertensive activity.

TT 72811-73-5P, 3-Pyridinesulfonamide, 4-[(3-methyl)phenylamino]RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)

(synthesis and diuretic and antihypertensive activities of novel anilinopyridyl sulfonylurea derivs.)

RN 72811-73-5 CAPLUS

3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

```
Me

NH

S-NH2

O
```

CN

```
L3 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
```

AN 2003:931332 CAPLUS

DN 139:395829

TI Process for the preparation of highly pure torsemide

IN Gutman, Arie; Etinger, Marina; Goldring, Dmitry; Pertsikov, Boris; Yudovitch, Lev; Tishin, Boris; Vilensky, Alexander; Glozman, Alexander; Nisnevich, Gennady

PA Finetech Laboratories Ltd., Israel

SO PCT Int. Appl., 63 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.				KIND DATE			APPLICATION NO.						DATE			
PI	WO 20	WO 2003097603			A1	A1 20031127		WO 2003-IL311						2	0030	415	
	W	: AE,	AG,	AL,	AM,	ΑT,	AU,	AZ,	BA,	BB,	BG,	BR,	BY,	ΒZ,	CA,	CH,	CN,
		CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	ES,	FI,	GB,	GD,	GE,	GH,
		GM,	HR,	ΗU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	ΚP,	KR,	KZ,	LC,	LK,	LR,
		LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NI,	NO,	NZ,	OM,
		PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	TJ,	TM,	TN,	TR,	TT,
		TZ,	UΑ,	UG,	US,	UΖ,	VC,	VN,	YU,	ZA,	ZM,	ZW					
	R	W: GH,	GM,	ΚE,	LS,	MW,	MZ,	SD,	SL,	SZ,	TZ,	ŪĠ,	ZM,	ZW,	AM,	AZ,	BY,
		KG,	KZ,	MD,	RU,	TJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,
		FI,	FR,	GB,	GR,	HU,	ΙE,	IT,	LU,	MC,	NL,	PT,	RO,	SE,	SI,	SK,	TR,
		BF,	ВJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	ΝE,	SN,	TD,	TG
	AU 2003219507								IL 2	002-	1497	71		A 2	0020	521	
			A1		2003	1202			003-					0030			
									,	IL 2	002-	1497	71	1	A 2	0020	521
									1	WO 2	003-	IL31:	1	1	W 2	00304	415

OS CASREACT 139:395829

The present invention provides a novel process for the preparation of highly pure torsemide by reacting of 4-m-tolylamino-3-pyridinesulfonamide with Ph isopropylcarbamate in the presence of lithium base. The present invention also provides a novel intermediate - torsemide lithium, also in hydrate or solvate form - which is a stable, solid compound, and may be simply isolated from the reaction mixture to give after acidification practically pure torsemide without further purification steps.

IT 72811-73-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

```
(in preparation of highly pure torsemide)
RN
     72811-73-5 CAPLUS
     3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)
CN
       Me
         NH<sub>2</sub>
RE.CNT 3
              THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT
L3
     ANSWER 9 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
AN
     2003:545787 CAPLUS
DN
     139:101033
TI
     Condensation process and catalysts for the preparation of
     3-sulfonamido-4-(phenylamino)pyridines from halobenzenes and
     3-sulfonamido-4-aminopyridines
IN
     Zetina-Rocha, Carlos B.; Guntoori, Bhaskar Reddy; Horne, Stephen E.
PΑ
     Brantford Chemicals Inc., Can.
SO
     U.S., 5 pp.
     CODEN: USXXAM
DT
     Patent
LA
     English
FAN.CNT 1
     PATENT NO.
                         KIND
                                DATE
                                            APPLICATION NO.
                                                                   DATE
     -----
                                -----
                                            -----
                         ----
     US 6593475
PΤ
                          B1
                                20030715
                                            US 2002-293280
                                                                   20021114
                                            CA 2002-2401546
                                                                A 20020906
     CA 2401546
                          AA
                                20040306
                                            CA 2002-2401546
                                                                   20020906
OS
     CASREACT 139:101033; MARPAT 139:101033
AB
     3-Sulfonamido-4-(phenylamino)pyridines [e.g., 3-sulfonamido-4-(3-
     methylphenylamino)pyridine], intermediates in the preparation of torsemide (no
     data), are prepared in high yield and selectivity by heating a
     3-sulfonamido-4-aminopyridine (e.g., 3-sulfonamido-4-aminopyridine) with a
     halobenzene (e.g., 3-iodotoluene) in the presence of an alkaline compound
     potassium carbonate), a copper-containing catalyst (e.g., powdered copper) and
in
     the presence of a polar protic solvent (e.g., 1-butanol).
IT
     72811-73-5P
     RL: SPN (Synthetic preparation); PREP (Preparation)
        (condensation process and catalysts for the preparation of
        3-sulfonamido-4-(phenylamino)pyridines from halobenzenes and
        3-sulfonamido-4-aminopyridines)
RN
     72811-73-5 CAPLUS
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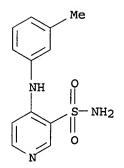
(CA INDEX NAME)

3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI)

CN

## RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L3 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 2003:311134 CAPLUS
- DN 139:197336
- TI Synthesis of a new, curative and effective medicine for hypertension and diuretic torasemide
- AU Xiong, Zhenhu; Fei, Xuening
- CS Tianjin Institute of Urban Construction, Tianjin, 300384, Peop. Rep. China
- SO Zhongguo Yaowu Huaxue Zazhi (2002), 12(4), 219-221, 224 CODEN: ZYHZEF; ISSN: 1005-0108
- PB Zhongguo Yaowu Huaxue Zazhi Bianjibu
- DT Journal
- LA Chinese
- OS CASREACT 139:197336
- AB Torasemide was prepared in 5 steps with high yield from 4-hydroxypyridine by sulfonation, chlorination, amidation, substitution with 3-methylaniline, and condensation with iso-Pr isocyanate.
- RN 72811-73-5 CAPLUS
- CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)



- L3 ANSWER 11 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 2001:713139 CAPLUS
- DN 135:257163
- TI Amidation process for preparing 4-chloro-3-pyridinesulfonamide and a method for the preparation of the diuretic torasemide

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TN
     Kordova, Marco
PA
     Teva Pharmaceutical Industries Ltd., Israel; Teva Pharmaceuticals USA,
SO
     PCT Int. Appl., 13 pp.
     CODEN: PIXXD2
DT
     Patent
LA
     English
FAN.CNT 1
     PATENT NO.
                        KIND
                               DATE
                                          APPLICATION NO.
     -----
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                               20010927 WO 2001-US8866
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PΙ
     WO 2001070226
                         A1
                                                                 20010320
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             CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
             HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
             LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
             RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
             VN, YU, ZA, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
             DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
             BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
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                                           US 2000-211510P
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     US 6635765
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                                20031021
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                                           US 2000-211510P
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                                           US 2000-211510P
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     JP 2003527425
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                         T2
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                                           US 2000-211510P
                                                               P 20000614
                                           WO 2001-US8866
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                               20041029
                                           NZ 2001-521852
                                                                  20010320
                                           US 2000-190650P
                                                               P
                                                                  20000320
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                                                               P 20000614
                                                               W 20010320
                                           WO 2001-US8866
                                           CN 2004-10078738
     CN 1623987
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                                           US 2000-190650P
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                                                                  20000320
                                           US 2000-211510P
                                                               P 20000614
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                               20030925
                                           ZA 2002-7683
                                                                  20020925
                                           US 2000-190650P
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    US 2003212277
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                               20031113
                                           US 2003-428463
                                                                  20030502
    US 6670478
                         B2
                               20031230
                                           US 2000-190650P
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                                           US 2000-211510P
                                                               P 20000614
                                           US 2001-812762
                                                               A3 20010320
    AU 2005203389
                                           AU 2005-203389
                         A1
                               20050818
                                                                  20050802
                                           US 2000-190650P
                                                               P 20000320
                                           AU 2001-47592
                                                              A3 20010320
os
    CASREACT 135:257163; MARPAT 135:257163
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GI

$$SO_2 - NH_2$$

I

 $SO_2 - NH_2$ 
 $SO_2 - NH_2$ 

AB Torasemide intermediates (I; X1, X2 = Cl, F, Br) are prepared in high yield and selectivity by the amidation of a halopyridinesulfonyl halide (II) in an organic solvent with ammonia; torasemide (III) is prepared by the addition reaction of I (X1 = 3-NHC6H4CH3) in the presence of NEt3 in acetonitrile with iso-Pr isocyanate.

ΙΙ

IT 72811-73-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(amidation process for preparing 4-chloro-3-pyridinesulfonamide and a
method for the preparation of the diuretic torasemide)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

#### ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L3 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 2000:892169 CAPLUS
- DN 134:187827
- TI Isosterism among analogues of torasemide: conformational, electronic and lipophilic properties
- AU Wouters, Johan; Michaux, Catherine; Durant, Francois; Dogne, Jean Michel; Delarge, Jacques; Masereel, Bernard
- CS Laboratory of Molecular Structure and Department of Pharmacy, Facultes Universitaires Notre Dame de la Paix, Namur, B-5000, Belg.
- SO European Journal of Medicinal Chemistry (2000), 35(10), 923-929 CODEN: EJMCA5; ISSN: 0223-5234
- PB Editions Scientifiques et Medicales Elsevier
- DT Journal
- LA English
- AB The structures, electronic (charges, mol. electrostatic potential, MOs) and lipophilic properties of three isostere analogs of torasemide were determined and the influence of the replacement of the sulfonyl urea group on the conformation and electronic properties of the mols. is discussed. Lipophilicity of the compds. seems to be the most discriminating property along the series and affects their pharmacol. activities (diuretic and anticonvulsant).
- IT 327602-58-4
  - RL: RCT (Reactant); RACT (Reactant or reagent)
    (isosterism among analogs of torasemide and conformational and
    electronic and lipophilic properties in relation to pharmacol.
    activities as diuretics and anticonvulsants)
- RN 327602-58-4 CAPLUS
- CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monosodium salt (9CI) (CA INDEX NAME)

Na

### RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L3 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN
- AN 1998:496547 CAPLUS
- DN 129:202846
- TI Design, Synthesis, and Anticonvulsant Activity of 1-(Pyrid-3-ylsulfonamido)-2-nitroethylenes
- AU Masereel, Bernard; Wouters, Johan; Pochet, Lionel; Lambert, Didier
- CS Department of Pharmacy, University of Namur FUNDP, Namur, 5000, Belg.
- SO Journal of Medicinal Chemistry (1998), 41(17), 3239-3244 CODEN: JMCMAR; ISSN: 0022-2623
- PB American Chemical Society

DT Journal LA English

GI

Lipophilic 1-(cycloalkylamino)-1-(pyrid-3-ylsulfonamido)-2-nitroethylenes were synthesized as bioisosteres of BM-34, an anticonvulsant sulfonylthiourea. Compound I (i.p.) emerged from the maximal electroshock seizure (MES) test with an ED50 of 8.25 mg/kg. Its anticonvulsant profile was similar to that of phenytoin (ED50 = 9.51 mg/kg) and of BM-34 (ED50 = 1.19 mg/kg): active in the MES test and inactive in seizures induced by s.c. injection of pentetrazole, strychnine, bicuculline, picrotoxin, or N-methyl-DL-aspartate. The neurotoxicity of I (TD50 = 113.8 mg/kg) was lower than that of phenytoin (TD50 = 65.5 mg/kg) but higher than that of BM-34 (TD50 = 147.2 mg/kg). Crystallog. study revealed that BM-401 (I) was a zwitterionic structure. Its sulfonamido nitroethylene side chain adopted a conformation which placed the two cycloalkyl rings face to face to form a single hydrophobic area.

IT 72811-73-5

RL: RCT (Reactant); RACT (Reactant or reagent)
 (1-(pyrid-3-ylsulfonamido)-2-nitroethylene anticonvulsants)

Ι

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:401455 CAPLUS

DN 127:86167

TI Video densitometric interpretation of thin-layer chromatograms

AU Mall, Thomas

CS Boehringer Mannheim GmbH, Abt. TF-CAA, Mannheim, D-68298, Germany

SO Duennschicht-Chromatographie (1996), 148-156. Editor(s): Kaiser, Rudolph E. Publisher: InCom-Bureau, Duesseldorf, Germany.

CODEN: 64PIAX

DT Conference

LA German

AB Due to improvements in image processing, results obtained today with video densitometry are comparable to those obtained with present-day densitometers with respect to linearity, precision, and reproducibility. It is applied to quant. anal. of thin-layer chromatograms of the contaminant BM 96.0102 in torasemide.

IT 72811-73-5, BM 960102
RL: ANT (Analyte); POL (Pollutant); ANST (Analytical study); OCCU
 (Occurrence)

(video densitometric interpretation of thin-layer chromatograms)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:589260 CAPLUS

DN 123:55665

TI Synthesis and pharmacology of pyrid-3-ylsulfonylcyanoguanidines as diuretics

AU Masereel, B.; Dupont, L.; Laeckmann, D.; Liegeois, J. F.; Pirotte, B.; de Tullio, P.; Delarge, J.

CS Department Medicinal Chemistry, University Liege, Liege, 4000, Belg.

SO European Journal of Medicinal Chemistry (1995), 30(4), 343-51 CODEN: EJMCA5; ISSN: 0223-5234

PB Elsevier

DT Journal

LA English

GI

AB Title compds. I [R1 = alkyl, cycloalkyl, substituted Ph, CH2Ph; R2 = NHCHMe2, NHEt, piperidino] were prepared from the sulfonamides and

MeSCR2:NCN. Some I have significant diuretic activity. Lipophilicities and ionization consts. are also reported.

IT 72811-73-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis and diuretic activity of pyridylsulfonylcyanoguanidines)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:301468 CAPLUS

DN 122:105616

TI Chemical structure and physico-chemical properties of torasemide

AU Kondo, Nobuo; Kimura, Masazo; Yamamoto, Madoka; Hashimoto, Hirotaka; Kawamata, Ken-ichiro; Kawano, Kensuke; Schmidt, Heinrich

CS New Product Res. Laboratories, Green Cross Corp., Hirakata, 573, Japan

SO Iyakuhin Kenkyu (1994), 25(9), 734-50 CODEN: IYKEDH; ISSN: 0287-0894

PB Nippon Koteisho Kyokai

DT Journal

LA Japanese

AB The chemical structure of torasemide, a diuretic agent, was confirmed on the basis of elemental anal., UV, IR, NMR and mass spectra. The physico-chemical properties were clarified by studying the appearance, solubility, hygroscopicity, photo-stability, m.p., thermal anal., pH of aqueous solution, dissociation constant, partition coefficient, polymorphism, specific optical rotation

and impurities. Investigations into the stability of torasemide under severe conditions were also conducted to define the degradative pathway for the compound

IT 72811-73-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis and physico-chemical properties of torasemide)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1988:160942 CAPLUS

DN 108:160942

TI Chemistry and pharmacological properties of the pyridine-3-sulfonylurea derivative torasemide

AU Delarge, J.

CS Inst. Pharm., State Univ. Liege, Liege, B-4000, Belg.

SO Arzneimittel-Forschung (1988), 38(1A), 144-50

CODEN: ARZNAD; ISSN: 0004-4172

DT Journal

LA English

OS CASREACT 108:160942

GI

$$R^2$$
 $N (R^4)$ 
 $Y$ 
 $SO_2NHCNHR^1$ 

AB Out of a series of pyridine-3-sulfonylureas (I; R1 = Me, Et, Pr, etc.; R2 = 3-CF3, 3-NO2, 3-MeO, 3-Me, 3-Et, 2-, 3-, 4-Cl, etc.; R3 = H or 4-, 5-Cl; R4 = R5 = H or Me; Y = O or S) with diuretic activity torasemide (I; R1 = i-Pr, R2 = 3-Me, R3 = R4 = R5 = H, Y = O), which was prepared, proved to be one of the most active derivs. In the rat, urinary volume and electrolyte excretions increased linearly with the logarithm of the dose, thus resembling the profile of a high ceiling diuretic. Torasemide was equally potent both by oral and parenteral administration. Compared to furosemide, torasemide was 9-40 times more potent on weight basis in the rat. For the same natriuretic effect, however, K+ losses with torasemide were less than with furosemide. The diuretic effect of torasemide lasted longer than that of furosemide. The plasma elimination half-life of torasemide was .apprx.1.5 h in the rat and bioavailability was nearly complete. Torasemide was 98-99% bound to plasma proteins. No in vitro interaction was found with the coumarin derivative warfarin.

TT 72811-73-5P, 3-Sulfonamido-4-(3-methylanilino)pyridine
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(preparation and reaction with isopropylcyanate)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1987:489293 CAPLUS

DN 107:89293

TI Chloride-channel blockers in the thick ascending limb of the loop of Henle. Structure-activity relationship

AU Wangemann, P.; Wittner, M.; Di Stefano, A.; Englert, H. C.; Lang, H. J.; Schlatter, E.; Greger, R.

CS Max-Planck-Inst. Biophys., Frankfurt/Main, D-6000, Fed. Rep. Ger.

SO Pfluegers Archiv (1986), 407 (Suppl. 2), S128-S141

CODEN: PFLABK; ISSN: 0031-6768

DT Journal

LA English

GI

$$\begin{array}{c} \text{CO}_2\text{H} \\ \text{CO}_2\text{H} \\ \text{Ph}\left(\text{CH}_2\right)_3\text{NH} \\ \end{array} \begin{array}{c} \text{NO}_2 \\ \text{I} \end{array} \begin{array}{c} \text{CO}_1 \\ \text{Cl} \end{array} \begin{array}{c} \text{I} \end{array}$$

AB On the basis of previous findings with diphenylamine-2-carboxylate a search for compds. which possess an even higher affinity for the Cl--channels in the basolateral membrane of the thick ascending limb of the loop of Henle has been conducted. To quantify the inhibitory potency, measurements of the equivalent short circuit current, corresponding to the secondary active transport of Cl- and measurements of the voltage across the basolateral membrane have been performed. A survey of 219 compds. reveals that relatively simple modifications in the structure of diphenylamine-2-carboxylate led to very potent blockers such as 5-nitro-2-(3-phenylpropylamino)benzoate (I) which inhibits the short circuit current half maximally (IC50) at 8.10-8 mol/L. Structure activity studies suggest that these Cl- channel blockers possess several sites of interaction: The neg. charged carboxylate group, the secondary amine group which probably carries a pos. partial charge, and for the very potent agents (e.g. I and 5-chlorodiphenylamine-2-carboxylic acid (II)) an addnl. neg. partial charge at the resp. -Cl or -NO2 substituent. Finally, also an apolar interaction with an cycloalkyl or cycloaryl residue seems to be

required, and this site of interaction has a defined spacing from the secondary amino  ${\tt N}.$ 

IT 72811-73-5

RL: BIOL (Biological study)

(chloride channel blocking activity of, structure in relation to)

RN 72811-73-5 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

L3 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1980:128730 CAPLUS

DN 92:128730

TI 4-Amino-3-sulfamoylpyridine derivatives and their use

IN Lapiere, Charles; Delarge, Jacques; Thunus, Leopold; Georges, Andre; De
Ridder, Rene; Ghys, Arlette

PA Christiaens, A., S. A., Belg.

SO Eur. Pat. Appl., 32 pp.

CODEN: EPXXDW

DT Patent

LA French

FAN.CNT 1

PAN . CN1	ATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EF	P 3383 P 3383 P 3383 R: DE, NL, SE	A2 A3 B1	19790808 19790905 19830209	EP 1979-200037	19790122
C	,			GB 1978-3918	19780131
GE	3 1593609	Α	19810722	GB 1978-3918	19780131 A A
ES	G 476658	A1	19790716	ES 1979-476658	19790109
ZA	A 7900090	A	19801029	ZA 1979-90	A 19780131 19790109
II	56407	A1	19830515	GB 1978-3918 IL 1979-56407	A 19780131 19790110
Δī	J 7943317	A1	19790809	GB 1978-3918 AU 1979-43317	A 19780131 19790112
	J 524287	B2	19820909	AU 1979 43317	19790112
CA	A 1124720	A1	19820601	GB 1978-3918 CA 1979-319934	A 19780131 19790119
				GB 1978-3918	A 19780131
BE	873656	A1	19790723	BE 1979-193040 GB 1978-3918	19790123 A 19780131
US	3 4244950	A	19810113	US 1979-6154	19780131 19790124 A 19780131

	FR 241622	5	A1	19790831	FR	1979-2109		19790126	
	FR 241622	5	B1	19811106					
					GB	1978-3918	A	19780131	
	AT 790059	4	A	19840115	AΤ	1979-594		19790126	
	AT 375646		В	19840827					
					GB	1978-3918	A	19780131	
	DD 141309		С	19800423	DD	1979-210692		19790129	
					GB	1978-3918	A	19780131	
	HU 20570		0	19810828	HU	1979-CI1905		19790130	
	HU 178203		P	19820328					
					GB	1978-3918	A	19780131	
3	CASREACT	92:128730;	MARPAT	92:128730					

OS

GI

Diuretic sulfamoylpyridines I [R = H, alkyl, cycloalkyl, R2R3NCO, R2R3NSO2 AB (R2, R3 = alkyl; R2R3N = heterocyclyl); R1 = alkyl, haloalkyl, cycloalkyl, alkenyl, Ph, phenylalkyl, Ph2CH2, isobornyl, furfuryl, dialkylaminoalkyl; X = substituted amino, alkoxy or heterocyclyl] were prepared and showeddiuretic activity at 25 mg/kg. in mice. Thus, refluxing 3-sulfamido-4-chloropyridine with 3-MeC6H4CH2NH2 in EtOH 9 h gave 3-sulfamido-4-(3-methylbenzyl)aminopyridine, which was treated with Me2CHNCO in CH2Cl2 containing Et3N 20 h at room temperature to give I (R = H, R1 =

3-MeC6H4CH2, X = Me2CHNH).

IT 72811-73-5P

> RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, with isopropylisocyanate)

RN72811-73-5 CAPLUS

3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) CN(CA INDEX NAME)

ANSWER 20 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN L3

AN 1976:59218 CAPLUS

DN 84:59218

- TI
- Pyridine derivatives
  Delarge, Jacques E.; Lapiere, Charles L.; Georges, Andre H.
  Christiaens, A., S. A., Belg.
  Ger. Offen., 39 pp.
  CODEN: GWXXBX IN
- PA
- SO

DTPatent

LA German

LA	German					
FAN.	CNT 2					
	PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
ΡI	DE 2516025	A1	19751106	DE 1975-2516025		19750412
	DE 2516025	C2	19881103			
	G3. 5500040	_		GB 1974-16836	Α	19740417
	ZA 7502243	A	19760331	ZA 1975-2243		19750408
	DE 025044			GB 1974-16836	A	19740417
	BE 827844	A1	19751013	BE 1975-155330	_	19750411
	EG 426501			GB 1974-16836	Α	19740417
	ES 436581	A1	19770401	ES 1975-436581	_	19750414
	IL 47084	2.1	10700101	GB 1974-16836	Α	19740417
	ID 47084	A1	19790131	IL 1975-47084		19750414
	SE 7504409	A	10751000	GB 1974-16836	Α	
	SE 424320	В	19751020	SE 1975-4409		19750416
	SE 424320	C	19820712 19821021			
	SE 424320	C	19021021	GB 1974-16836	70	10040410
	NL 7504521	A	19751021	NL 1975-4521	Α	
	NL 183580	В	19880701	NL 1975-4521		19750416
	NL 183580	C	19881201			
	N2 103300		17001201	GB 1974-16836	Α	19740417
	FR 2267775	<b>A</b> 1	19751114	FR 1975-11791	A	19750416
	FR 2267775	B1	19781114	FR 1975-11791		19/30410
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	US 4018929	Α	19770419	US 1975-568759	Α.	19750416
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	AT 7502882	Α	19771115	AT 1975-2882		19750416
				GB 1974-16836	Α	19740417
	AT 345832	В	19781010	AT 1977-1898	••	19750416
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				AT 1975-2882	A	19750416
	CH 609045	Α	19790215	CH 1975-4857		19750416
				GB 1974-16836	Α	19740417
	CH 610890	A	19790515	CH 1978-2163		19750416
				GB 1974-16836	Α	19740417
	CH 612424	Α	19790731	CH 1978-2164		19750416
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	JP 50142571	A2	19751117	JP 1975-47371		19750417
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	DD 106005	_		GB 1974-16836	Α	19740417
	DD 126887	С	19770817	DD 1975-194800		19750417
	110 1010555	_		GB 1974-16836	Α	19740417
	US 4042693	A	19770816	US 1976-694422		19760609
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	US 4055650	A	19771025	US 1976-694421	_	19760609
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	ES 453328	A1	19771101	ES 1976-453328		19761115
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	AT 7701897	Α	19771115	AT 1977-1897		19770318
				GB 1974-16836	Α	19740417
				AT 1975-2882	Α	19750416
	AT 7701899	A	19771115	AT 1977-1899		19770318
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	US 30633	E	19810602	US 1980-119601		19800207
				GB 1974-16836	Α	19740417
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	NT FAMILY INFORMAT	ION:				
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	PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
ΡI	DE 2423765	A1	19751127	DE 1974-2423765		19740516
	DE 2423765	C2	19821014			
	GD 1455001	_			Α	
	GB 1455981	A	19761117	GB 1975-16836		19750423
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	US 4055571	Α	19771025	US 1975-573203		19750430
	.m. =500.c=c	_		DE 1974-2423765	Α	19740516
	AT 7503676	A	19751015	AT 1975-3676		19750514
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	NL 7505662	Α	19751118	NL 1975-5662		19750514
	70 50454055			DE 1974-2423765	A	19740516
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	CH 614717	A	19791214	CH 1975-6207		19750514
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	DK 7502142	A	19751117	DK 1975-2142		19750515
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	BR 7503009	A	19760323	BR 1975-3832		19750515
		_		DE 1974-2423765	Α	19740516
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	TD 000			DE 1974-2423765	A	19740516
	FR 2271231	A1	19751212	FR 1975-15408		19750516
	FR 2271231	B1	19790330			
				DE 1974-2423765	Α	19740516

US 4042693 A 19770816 US 1976-694422 19760609 GB 1975-16836 A 19750414 US 1975-568759 A2 19750416

GI For diagram(s), see printed CA Issue. AB Pyridinesulfonamides I [R = C6H4R3 (R3 = Cl, F3C, Me, MeO, H, Br, F, NO2, Et, NH2), Et, iso-Pr, 4-methylfuryl, C6H3Cl2, C6H3(CF3)Cl; R1 = alkylcarbamoyl, cyclohexylcarbamoyl, CSNHCH2CH:CH2, CONHPh, CONHC6H4Cl-p, alkylthiocarbamoyl, H, COEt; R2 = H, Me; X = NH, NMe, O, S, NEt; n = 0, 1], useful as inflammation inhibitors and diuretics, were prepared by various methods, e.g., treatment of I (R1 = H) with an isocyanate or isothiocyanate. Reaction of I (R1 = H) with an alkyl haloformate, then with an amine, gave I (R1 = substituted carbamoyl). II reacted with amines R5NHR to give I (X = NH, NMe, NEt). II was treated with NaXR (R =substituted phenyl, X = 0, S) to give the corresponding I. To prepare I (R1 = acyl) or pyridothiadiazole III, I (R1 = H) was reacted with EtCOCl, (EtCO) 20, or BzCl. Treatment of I (R = alkylthiocarbamoyl) with aqueous alc. Na2CO3 and HgO gave I (R1 = alkylcarbamoyl). Oxidation of I (n = 0) gave I (n = 1). I caused 1.6-92.0% inhibition of carrageenan-induced edema in rats [best results by I (R = 3,4-Cl2C6H3, R1 = CONHCHMe2, X = NH, R2 = H, n = 0] and caused 3.6-106.4 mg/kg increase in urine of rats [best results by I (R = 3-F3CC6H4, R1 = CONHET, X = NH, R2 = H, n = 1)]. IT58155-58-1

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with isopropyl isocyanate)

RN 58155-58-1 CAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, 1-oxide, monosodium salt (9CI) (CA INDEX NAME)

Na

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=> s 15 and isocyanate
         64394 ISOCYANATE
             8 L5 AND ISOCYANATE
L6
=> d 1-8
L6
     ANSWER 1 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
     2005:1028131 CAPLUS
AN
DN
     143:326220
ΤI
     Process for the preparation of torsemide and related intermediates
     Che, Daqing; Guntoori, Bhaskar Reddy; Duncan, Sammy Chris
IN
PΑ
     Brantford Chemicals Inc., Can.
SO
     U.S. Pat. Appl. Publ., 5 pp.
     CODEN: USXXCO
DT
     Patent
LΑ
     English
FAN.CNT 1
     PATENT NO.
                        KIND
                               DATE
                                           APPLICATION NO.
                                                                 DATE
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     US 2005209460
PΙ
                         A1
                               20050922
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os
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L6
     ANSWER 2 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN
     2004:878376 CAPLUS
DN
     141:370519
ΤI
     Preparation of stable polymorphic form of torasemide
IN
     Yeh, Wen-Lung; Khumtaveeporn, Kanjai; McKenzie, David John
PA
     Torcan Chemical Ltd., Can.
     PCT Int. Appl., 17 pp.
SO
     CODEN: PIXXD2
DT
     Patent
LA
     English
FAN.CNT 1
                       KIND DATE
     PATENT NO.
                                         APPLICATION NO.
                                                                 DATE
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                                                                 ______
PΤ
     WO 2004089904
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                               20041021
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            SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
            TD, TG
     CA 2424644
                         AA
                               20041007
                                           CA 2003-2424644
                                                                 20030407
PRAI CA 2003-2424644
                         A
                               20030407
L6
    ANSWER 3 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN
    2004:525098 CAPLUS
DN
    141:71454
TI
    Process for the preparation of torsemide form II
    Lusanna, Massimiliano; Rainoni, Mauro; Gambuzza, Filippo
IN
PA
    Cosma S.P.A., Italy
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SO
    Eur. Pat. Appl., 28 pp.
     CODEN: EPXXDW
DT
     Patent
LA
    English
FAN.CNT 1
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                                                                  DATE
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PТ
    EP 1433784
                               20040630
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                                           EP 2003-29586
                                                                  20031222
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     US 2004138469
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                               20040715
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     CA 2454037
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PRAI IT 2002-MI2749
                         Α
                               20021223
    CASREACT 141:71454
RE.CNT 5
             THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
             ALL CITATIONS AVAILABLE IN THE RE FORMAT
L6
    ANSWER 4 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN
     2003:311134 CAPLUS
DN
     139:197336
TI
     Synthesis of a new, curative and effective medicine for hypertension and
     diuretic torasemide
AU
    Xiong, Zhenhu; Fei, Xuening
    Tianjin Institute of Urban Construction, Tianjin, 300384, Peop. Rep. China
CS
SO
     Zhongguo Yaowu Huaxue Zazhi (2002), 12(4), 219-221, 224
     CODEN: ZYHZEF; ISSN: 1005-0108
PB
     Zhongguo Yaowu Huaxue Zazhi Bianjibu
DT
     Journal
    Chinese
LA
OS
    CASREACT 139:197336
L6
    ANSWER 5 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN
    2000:892169 CAPLUS
DN
     134:187827
ΤI
     Isosterism among analogues of torasemide: conformational, electronic and
     lipophilic properties
ΑU
    Wouters, Johan; Michaux, Catherine; Durant, Francois; Dogne, Jean Michel;
    Delarge, Jacques; Masereel, Bernard
    Laboratory of Molecular Structure and Department of Pharmacy, Facultes
CS
    Universitaires Notre Dame de la Paix, Namur, B-5000, Belg.
SO
    European Journal of Medicinal Chemistry (2000), 35(10), 923-929
    CODEN: EJMCA5; ISSN: 0223-5234
PB
    Editions Scientifiques et Medicales Elsevier
DT
    Journal
LΑ
    English
RE.CNT 19
             THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
             ALL CITATIONS AVAILABLE IN THE RE FORMAT
L6
    ANSWER 6 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
ΑN
     1995:301468 CAPLUS
DN
     122:105616
ΤI
    Chemical structure and physico-chemical properties of torasemide
```

- AU Kondo, Nobuo; Kimura, Masazo; Yamamoto, Madoka; Hashimoto, Hirotaka; Kawamata, Ken-ichiro; Kawano, Kensuke; Schmidt, Heinrich
- CS New Product Res. Laboratories, Green Cross Corp., Hirakata, 573, Japan
- SO Iyakuhin Kenkyu (1994), 25(9), 734-50 CODEN: IYKEDH; ISSN: 0287-0894
- PB Nippon Koteisho Kyokai
- DT Journal

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LA
      Japanese
L6
      ANSWER 7 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
      1980:128730 CAPLUS
AN
DN
      92:128730
ΤI
      4-Amino-3-sulfamoylpyridine derivatives and their use
IN
      Lapiere, Charles; Delarge, Jacques; Thunus, Leopold; Georges, Andre; De
      Ridder, Rene; Ghys, Arlette
PA
      Christiaens, A., S. A., Belg.
SO
      Eur. Pat. Appl., 32 pp.
      CODEN: EPXXDW
DT
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LA
      French
FAN.CNT 1
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                              A2 19790808 EP 1979-200037
A3 19790905
B1 19830209
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      EP 3383
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      EP 3383
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     R: DE, NL, SE

GB 1593609

A 19810722

GB 1978-3918

ES 476658

A1 19790716

ES 1979-476658

ZA 7900090

A 19801029

IL 56407

AU 7943317

AU 7943317

AU 524287

CA 1124720

BE 873656

A1 19790723

BE 873656

A1 19790723

BE 1979-193040

US 4244950

A 19810113

US 1979-6154

FR 2416225

A1 19790831

FR 1979-2109

FR 2416225

B1 19811106

AT 7900594

AT 375646

B 19840827

DD 141309

C 19800423

DD 1979-210692

HU 20570

O 19810828

HU 1979-CI1905

HU 178203

CB 1978-3918
          R: DE, NL, SE
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      HU 178203
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      CASREACT 92:128730; MARPAT 92:128730
      ANSWER 8 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
L6
AN
      1976:59218 CAPLUS
DN
      84:59218
TI
     Pyridine derivatives
IN
     Delarge, Jacques E.; Lapiere, Charles L.; Georges, Andre H.
PA
      Christiaens, A., S. A., Belg.
SO
      Ger. Offen., 39 pp.
      CODEN: GWXXBX
DT
      Patent
LA
      German
FAN.CNT 2
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PΙ
     DE 2516025
                              A1 19751106 DE 1975-2516025
                                                                                   19750412
                     C2 19881103
A 19760331 ZA 1975-2243
A1 19751013 BE 1975-155330
A1 19770401 ES 1975-436581
A1 19790131 IL 1975-47084
A 19751020 SE 1975-4409
      DE 2516025
      ZA 7502243
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      BE 827844
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19750414

19750416

IL 47084

SE 7504409

	SE	424320	В	19820712			
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	FR	2267775	A1	19751114	FR	1975-11791	19750416
	FR	2267775	B1	19781110			
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	CH	612424	A	19790731	CH	1978-2164	19750416
	CA	1070313	A1	19800122	CA	1975-224805	19750416
	JP	50142571	A2	19751117	JP	1975-47371	19750417
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	GB	1975-16836	A	19750414			
		1975-2882	Α	19750416			
		1975-568759	A2	19750416			
	US	1979-31101	A1	19790418			

L7 STR

Structure attributes must be viewed using STN Express query preparation.

=> s 17 ful

FULL SEARCH INITIATED 14:09:26 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 703 TO ITERATE

100.0% PROCESSED 703 ITERATIONS

10 ANSWERS

SEARCH TIME: 00.00.01

L8 10 SEA SSS FUL L7

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L8 ANSWER 1 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

RN 777854-85-0 REGISTRY

ED Entered STN: 10 Nov 2004

CN 3-Pyridinesulfonamide, 4-chloro-, monohydrochloride (9CI) (CA INDEX NAME)

MF C5 H5 Cl N2 O2 S . Cl H

SR CA

LC STN Files: CA, CAPLUS

CRN (33263-43-3)

HCl

- 1 REFERENCES IN FILE CA (1907 TO DATE)
- 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
- L8 ANSWER 2 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

412928-85-9 REGISTRY RN

ED Entered STN: 09 May 2002

Acetic acid, methoxy-, (1R,2S)-1-[3-(aminosulfonyl)-4-chloro-2-pyridinyl]-CN2-fluoropropyl ester, rel- (9CI) (CA INDEX NAME)

STEREOSEARCH

FS MF C11 H14 Cl F N2 O5 S

SR CA

LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPAT7, USPATFULL

Relative stereochemistry.

$$C1$$
 $S = 0$ 
 $R$ 
 $Me$ 
 $H_2N$ 
 $O$ 
 $O$ 
 $O$ 
 $O$ 

### \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

ANSWER 3 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN L8

RN198829-26-4 REGISTRY

ED Entered STN: 19 Dec 1997

CN Quinolinium, 3-(aminosulfonyl)-4-chloro-1-ethyl-, ethyl sulfate (9CI) INDEX NAME)

MF C11 H12 Cl N2 O2 S . C2 H5 O4 S

SR

LC STN Files: CA, CAPLUS

> CM 1

CRN 198829-25-3

CMF C11 H12 Cl N2 O2 S

CM 2

CRN 48028-76-8

#### CMF C2 H5 O4 S

Et-0-503-

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

- L8 ANSWER 4 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN
- RN 198829-25-3 REGISTRY
- ED Entered STN: 19 Dec 1997
- CN Quinolinium, 3-(aminosulfonyl)-4-chloro-1-ethyl- (9CI) (CA INDEX NAME)
- FS 3D CONCORD
- MF C11 H12 Cl N2 O2 S
- CI COM
- SR CA

- L8 ANSWER 5 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN
- RN 198829-24-2 REGISTRY
- ED Entered STN: 19 Dec 1997
- CN Quinolinium, 3-(aminosulfonyl)-4-chloro-1-methyl-, methyl sulfate (9CI) (CA INDEX NAME)
- MF C10 H10 Cl N2 O2 S . C H3 O4 S
- SR CA
- LC STN Files: CA, CAPLUS

CM 1

CRN 198829-23-1

CMF C10 H10 Cl N2 O2 S

CM 2

CRN 21228-90-0 CMF C H3 O4 S

Me- 0- SO3 -

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L8 ANSWER 6 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

RN 198829-23-1 REGISTRY

ED Entered STN: 19 Dec 1997

CN Quinolinium, 3-(aminosulfonyl)-4-chloro-1-methyl- (9CI) (CA INDEX NAME)

FS 3D CONCORD

MF C10 H10 Cl N2 O2 S

CI COM

SR CA

L8 ANSWER 7 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

RN 157494-10-5 REGISTRY

ED Entered STN: 07 Sep 1994

CN 3-Quinolinesulfonamide, 4-chloro- (9CI) (CA INDEX NAME)

FS 3D CONCORD

MF C9 H7 C1 N2 O2 S

SR CA

LC STN Files: CA, CAPLUS, CASREACT

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

- 3 REFERENCES IN FILE CA (1907 TO DATE)
- 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L8 ANSWER 8 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN RN 69300-01-2 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-chloro-5-methyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 4-Chloro-5-methylpyridine-3-sulfonamide

FS 3D CONCORD

MF C6 H7 Cl N2 O2 S

LC STN Files: BEILSTEIN\*, CA, CAPLUS, TOXCENTER

(\*File contains numerically searchable property data)

$$H_2N-S$$
 $C1$ 
 $Me$ 

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L8 ANSWER 9 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

RN 58155-57-0 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-chloro-, 1-oxide (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 4-Chloro-3-sulfamoylpyridine N-oxide

CN NSC 325677

FS 3D CONCORD

MF C5 H5 Cl N2 O3 S

LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT, IFICDB, IFIPAT, IFIUDB,

TOXCENTER, USPATFULL

(\*File contains numerically searchable property data)

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L8 ANSWER 10 OF 10 REGISTRY COPYRIGHT 2006 ACS on STN

RN 33263-43-3 REGISTRY

ED Entered STN: 16 Nov 1984

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

#### OTHER NAMES:

CN 4-Chloro-3-pyridinesulfonamide CN 4-Chloro-3-pyridylsulfonamide

FS 3D CONCORD

MF C5 H5 C1 N2 O2 S

CI COM

LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CSCHEM, IFICDB, IFIPAT, IFIUDB, PS, TOXCENTER, USPAT2, USPATFULL (\*File contains numerically searchable property data)

Other Sources: EINECS\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

- 33 REFERENCES IN FILE CA (1907 TO DATE)
- 33 REFERENCES IN FILE CAPLUS (1907 TO DATE)

